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## Calcific tendinitis of the supraspinatus tendon in children

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## Calcific tendinitis of the supraspinatus tendon in children

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**Abstract** We present the case of a 13-year-old girl with painful calcific tendinitis of the supraspinatus tendon of the left shoulder. The pathologic finding was the presence of a small calcium deposit within the supraspinatus tendon.

**Keywords** Calcification · Tendinitis · Child · Diabetes

### Calcification du tendon sus-épineux chez un enfant

**Résumé** Nous rapportons un cas de calcification douloureuse du tendon sus-épineux de l'épaule gauche chez une jeune fille de 13 ans. Un fin dépôt de calcium fut trouvé au contrôle anatomo-pathologique.

**Mots clés** Calcification · Tendinite · Enfant · Diabète

### Introduction

Calcific tendinitis of the shoulder is a reactive calcification of the rotator cuff tendons. The disorder is most common among people between 30 and 60 years of age and very rare in childhood. It is slightly more often found in females. Bilateral involvement is possible. A history of minor trauma has been reported to be present in up to one-third of patients [1]. The deposition of calcium hydroxyapatite crystals, usually medial to the insertion of the supraspinatus tendon, may be associated with acute, severe inflammation and shoulder pain. Similar lesions may occur around ligaments and tendons of the ankle, knee, hip, and elbow. Acute or chronic painful restriction of the range of motion (ROM) of the shoulders limits patients' activities of daily living

(ADLs). Approximately 50% of patients with calcific tendonitis have shoulder pain, particularly nocturnal discomfort.

Many methods have been applied in the treatment of calcific tendinitis of the shoulder, including the use of nonsteroidal anti-inflammatory drugs, local injection with steroid, percutaneous needle aspiration, ESWT (extracorporeal shock wave therapy), physical modalities with therapeutic ultrasound, or transcutaneous electric nerve stimulation (TENS), and other conservative management methods such as therapeutic exercises. In cases, where conservative treatment is without success, surgical intervention is necessary.

### Case report

A 13-year-old girl attended at our emergency department because of pain and swelling of the left shoulder followed by a disseminated erythema of the deltoid region since 2 days. Physical examination showed pain when abducting and elevating the left arm. Shoulder movement was restricted. The shoulder was painful over the humeral head. A disseminated erythema of the deltoid region on the left side was found. WBC, C-reactive protein and temperature were normal. X-ray investigations showed a calcification in the middle portion of the supraspinatus tendon of 2 mm in diameter. Verification of calcification was done by ultrasonography. Osseous lesions were not found. MRI was not performed. The child was treated with nonsteroidal anti-inflammatory drugs. One day later, pain and erythema was relieved and shoulder movement was painless.

### Discussion

Calcific tendinitis is an uncommon disorder caused by calcium hydroxyapatite deposition in a tendon that occurs rarely in children [8, 4, 9, 5, 6]. The causes and pathogenesis of rotator cuff calcifications remains

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unclear. Relative ischemia as a result of hypovascularization in the critical zone of the rotator cuff, degenerative tendons, and metabolic disturbances have been mentioned. Clinically, patients may be asymptomatic or may present with either acute or chronic pain. The diagnosis of calcific tendinitis accounts for approximately 7% of painful shoulder syndromes [11]. The acute symptoms may be dramatic, including erythema, swelling, painful range of motion, and fever. The most commonly affected sites, in decreasing order of frequency, are the shoulder, hip, elbow, wrist, and knee [3].

The pathogenesis of calcium hydroxyapatite crystal deposition in or near a tendon is unclear. Several theories have been proposed, including degeneration of a tendon as a result of recurrent trauma [3], local hypoxia leading to alkaline pH [7], and neurologic or metabolic factors. The leading theory at present is that calcific tendinitis is a primary disorder in susceptible tendons [10]. Tendon degeneration has been considered to be the result of the reparative response to crystal deposition rather than the cause of presentation [10]. Local hypoxia is thought to lead to fibrocartilaginous metaplasia, and it is the cartilaginous tissue that produces the radiographically and pathologically identifiable calcification.

High-quality, properly positioned radiographs and ultrasonography are necessary to diagnose calcific tendinitis using imaging. MRI is also used in diagnosing the disease. Treatment of calcific tendinitis is usually limited to the use of nonsteroidal anti-inflammatory drugs [2]. Supportive therapy is all that is necessary in most cases because the disease is self-limiting and typically spontaneously resolves. Surgical resection of the concretion

or intralesional injection of steroids have also been used but are not necessary in most cases. Especially in adults, ESWT is effective in the treatment of chronic calcific tendinitis of the shoulder. To date, there are no larger studies concerning ESWT to treat calcific tendinitis in children.

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